FIG. 1A

ctcgctcctctcctacttggataactgtggtaattctagagctaatacatgccgacgggc	60
gctgacccccttcgcggggggatgcgtgcatttatcagatcaagaccaacccggtcagc	120
ccctctccggcccggccgggggggggcggccggcggctttggtgactctagataacctc	180
gggccgatcgcacgcccccgtggcggcgacgacccattcgaacgtctgccctatcaact	240
ttcgatggtagtcgccgtgcctaccatggtgaccacgggtgacggggaatcagggttcga	300
ttccggagagggagcctgagaaacggctaccacatccaaggaagg	360
ttacccactcccggaggtggcggcggccatcttggcgaagggggggatcaggaagtgcg	420
gaccgcggcggcggcggcggcggcggcggagcccggagcgcaggccggaggctc	480
ccggcccgccggagcggagcggagcggaggatgcagcagccgcagccgcagggg	540
cagcagcagccggggccggggcagcagctgggggccagggggcggcggggggccgggg	600
ggcggcccaggggggggcccgggggccctgcctgaggcgagagctgaagctgctc	660
gagtccatcttccaccgcggccacgagcgcttccgcattgccagcgcctgcct	720
ctgagctgcgagttcctgctggctggggccggaggggccgggggggg	780
ccgcatctcccccacgggggtcggtgcctggggatcctgtccgcatccactgcaacatc	840
acggagtcataccctgctgtgcccccatctggtcggtggagtctgatgaccctaacttg	900
gctgctgtcttggagaggctggtggacataaagaaagggaatactctgctattgcagcat	960
ctgaagaggatcatctccgacctgtgtaaactctataacctccctc	1020
gagatgctggatcaacccttgccagcagagcagtgcacacaggaagacgtgtcttcagaa	1080
gatgaagatgaggagatgcctgaggacacagaagacttagatcactatgaaatgaaagag	1140
gaagagccagctgagggcaagaaatctgaagatgatggcattggaaaagaaaacttggcc	1200
atcctagagaaaattaaaaagaaccagaggcaagattacttaaatggtgcagtgtctggc	1260
tcggtgcaggccactgaccggctgatgaaggagctcagggatatataccgatcacagagt	1320
ttcaaaggcggaaactatgcagtcgaactcgtgaatgacagtctgtatgattggaatgtc	1380
aaactcctcaaagttgaccaggacagcgctttgcacaacgatctccagatcctcaaagag	1440

FIG. 1B

aaagaaggagccgacttcattctacttaacttttcctttaaagataactttccctttgac	1500
ccaccatttgtcagggttgtgtctccagtcctctctggagggtatgttctgggcggaggg .	1560
gccatctgcatggaacttctcaccaaacagggctggagcagtgcctactccatagagtca	1620
gtgatcatgcagatcagtgccacactggtgaaggggaaagcacgagtgcagtttggagcc	1680
aacaaatctcaatacagtctgacaagagcacagcagtcctacaagtccttggtgcagatc	1740
cacgaaaaaaacggctggtacacacccccaaaagaagacggctaaccctggagtatcacc	1800
cttcctccctccccaggcaccactggaccaattacctttgaatgctgtatttggatctda	1860
cgctgcctctgtggttccctccctcatttttcctggacgtgatagctctgcctattgcag	1920
gacaatgatggctattctaaacgctaaggaaaaaaaaacaaac	1980
ctcaagactgacttacagaccaaccaaccttgctggaacccttgctagcaggcattc	2040
ttataaaagaaactttcgagcctccttatattgctggaaactcagctgtgctccagacta	2100
gagcctccttacctatgctatggatttttaatttattttctcttatttcatgtacactgc	2160
tttttttggttacagtgtatgatggatgtgtatgaaaaaaatgtatctttgggaaaacaa	2220
ttacagtttgttaatttgaaaaaaaaaaaaaaa	2280
(SEQ ID NO:1)	

FIG. 2A

MQQPQP QQQPGPGQQLGGQGAAP G A GGCGGCCCAGGGGGGCCCGGGGCCCTGCCTGAGGCGAGAGCTGAAGCTGCTC G G P G G P G P C L R R E L KLL SIFHRGHERFRIASACLDE L S C E F L L A G A G G A G A A P CCGCATCTCCCCCACGGGGGTCGGTGCCTGGGGATCCTGTCCGCATCCACTGCAACATC PHLPPRGSVPGDPV RIHCN ACGGAGTCATACCCTGCTGTGCCCCCCATCTGGTCGGTGGAGTCTGATGACCCTAACTTG ESYPAVPP I W s v E S D D GCTGCTGTCTTGGAGAGGCTGGTGGACATAAAGAAAGGGAATACTCTGCTATTGCAGCAT AAVLERLVD IKKGNTLLLQH LKRII SDLCKLYNLPQH GAGATGCTGGATCAACCCTTGCCAGCAGAGCAGTGCACACAGGAAGACGTGTCTTCAGAA EMLDQPLPAEQCTQE D V GATGAAGATGAGGAGATGCCTGAGGACACAGAAGACTTAGATCACTATGAAATGAAAGAG DEDEEMPED TEDLDHYEMKE GAAGAGCCAGCTGAGGGCAAGAAATCTGAAGATGATGGCATTGGAAAAGAAAACTTGGCC EEPAEGKKSEDDGI GKENLA ATCCTAGAGAAAATTAAAAAGAACCAGAGGCAAGATTACTTAAATGGTGCAGTGTCTGGC LEKIKKNQRQDYLNGAVSG TCGGTGCAGGCCACTGACCGGCTGATGAAGGAGCTCAGGGATATATACCGATCACAGAGT VQATDRLMKELRDI TTCAAAGGCGGAAACTATGCAGTCGAACTCGTGAATGACAGTCTGTATGATTGGAATGTC K G G N Y A V E L V N D S L Y D W N V AAACTCCTCAAAGTTGACCAGGACAGCGCTTTGCACAACGATCTCCAGATCCTCAAAGAG K L L K V D Q D S A L H N D L Q I L K E AAAGAAGGAGCCGACTTCATTCTACTTAACTTTTCCTTTAAAGATAACTTTTCCCTTTGAC K E G A D F I L L N F S F K D N F P F D CCACCATTTGTCAGGGTTGTGTCTCCAGTCCTCTGGAGGGTATGTTCTGGGCGGAGGG P P F V R V V S P V L S G G Y V L G G G GCCATCTGCATGGAACTTCTCACCAAACAGGGCTGGAGCAGTGCCTACTCCATAGAGTCA I C M E L L T K Q G W S S A Y S I E S GTGATCATGCAGATCAGTGCCACACTGGTGAAGGGGAAAGCACGAGTGCAGTTTGGAGCC I M Q I S A T L V K G K A R V Q F G A

FIG. 2B

FIG. 3

M QQPQPQGQQ	QPGPGQQLGG	QGAAPGAGGG	PGGGPGPGPC	40
LRRELKLLES	IFHRGHERFR	IASACLDELS	CEFLLAGAGG	80
AGAGAAPGPH	LPPRGSVPGD	PVRIHCNITE	SYPAVPPIWS	120
VESDDPNLAA	VLERLVDIKK	${\tt GNTLLLQHLK}$	RIISDLCKLY	160
NLPQHPDVE M	LDQPLPAEQC	TQEDVSSEDE	DEEMPEDTED	200
LDHYEMKEEE	PAEGKKSEDD	GIGKENLAIL	EKIKKNQRQD	240
YLNGAVSGSV	QATDRLMKEL	RDIYRSQSFK	GGNYAVELVN	280
DSLYDWNVKL	LKVDQDSALH	NDLQILKEKE	GADFILLNFS	320
FKDNFPFDPP	FVRVVSPVLS	GGYVLGGGAI	CMELLTKQGW	360
SSAYSIESVI	MQISATLVKG	KARVQFGANK	SQYSLTRAQQ	400
SYKSLVQIHE	KNGWYTPPKE	DG		422
(SEQ ID NO:2)				

FIG. 4

RATL1d6 T21349_F25H2.8_Cel AAF45767_EG:25E8_Dr	(1) (1) (1)	1	
RATL1d6 T21349_F25H2.8_Cel AAF45767_EG:25E8_Dr	(66) (32) (32)	130 LDELSCEFLLAGAGGAGAAPGPHLPPRGSVPGDPVRIHCNITESYPAVPPIWSVESDDPNLAA VDELSMKFINAENKGIIVTANIQENYPRQPPIWFSESDDVPVIG VDELLCRFIDKNG	
RATL1d6 T21349_F25H2.8_Cel AAF45767_EG:25E8_Dr	(76)	131. 195 VLERLVDIKKGNTLLLQHLKRIISDLCKLYNLPQHPDVEMLDQPL	
RATL1d6 T21349_F25H2.8_Cel AAF45767_EG:25E8_Dr P52483_UB6B_MOUSE	(176) (133) (141) (1)	196 260PAEQCTQEDVSSEDEDEEMPEDTEDLDHYEMKEEEPAEGKKSEDDGIGKENLAILEKIK SDTTSEPIDDDMAGDGEVDDDDEEEEDDEDADGDIEIVEMAEEDPTSQHDVGVSKEGLDMLDKVS AGGGGGPHGNEETDSDQEEIEDPIGESEQESEGDEDLPLEMDDVRSTSKKDDMEVEHLATLEKLR	
RATL1d6 T21349_F25H2.8_Cel AAF45767_EG:25E8_Dr P52483_UB6B_MOUSE P27924_UBC1_HUMAN CAA72184_UBCD4_Dr P14682_UBC3_YEAST	(235) (198) (206) (28) (1) (1) (1)	325 KNORODYLNGAVSGSVQATDRLMKELRDIYRSQSFKGGNYAVELVN-DSLYDWNVKLLKVDQDSA KINRQQHLDGKVQGSITATDRLMKEIRDIHRSEHFKNGIYTFELEKEENIYQWIKLHKVDEDSP QSQRQDYLKGSVSGSVQATDRLMKELRDIYRSDAFKKNMYSIELVN-ESIYEWNIRLKSVDPDSP AAPKPEEQEERKPSATQQKKNTKLSSKTTAKLSTSAKRIQKELAEITLDPPPNCSAGPKGDNIYE	
RATL1d6 T21349_F25H2.8_Cel AAF45767_EG:25E8_Dr P52483_UB6B_MOUSE P27924_UBC1_HUMAN CAA72184_UBCD4_Dr P14682_UBC3_YEAST	(299) (263) (270) (93) (39) (39) (43)	326 LHNDLQILKEKEGA-DFILLNFSFKDNFPFDPPFVRVVSPVLSGVVLGGAICMELLTKQG LFEDMKKLKKDHNQ-DHLLFSFTFNEKFPCDPPFVRVVAPHINQGFVLCGGAICMELLTKQG LHSDLQMLKEKEGK-DSILLNILFKETYPFEPPFVRVVHPIISGGYVLIGGAICMELLTKQG WRSTILGPPGSVYEGGVFFLDITFSSDYPFKPPKVTFRTRIYHCNINSQ-GVICLDILKDN LRGEIAGPPDTPYEGGRYOLEIKIPETYPFNPPKVRFITKIWHPNISSVTGAICLDILKDQ LRGEIAGPPDTPYEGGKFVLEIKVPETYPFNPPKVRFITRIWHPNISSVTGAICLDILKDN NIGVMVLNEDSIYHGGFFKAQMRFPEDFPFSPPQFRFTPAIYHPNVYRD-GRLCISILHQSGDPM	
RATL1d6 T21349_F25H2.8_Cel AAF45767_EG:25E8_Dr P52483_UB6B_MOUSE P27924_UBC1_HUMAN CAA72184_UBCD4_Dr P14682_UBC3_YEAST	(360) (324) (331) (153) (100) (100) (107)	455	
RATL1d6 T21349_F25H2.8_Cel AAF45767_EG:25E8_Dr P52483_UB6B_MOUSE P27924_UBC1_HUMAN CAA72184_UBCD4_Dr P14682_UBC3_YEAST	(374) (384) (203) (150) (150)	#EKNGWYTPPKEDG	
T21349_F25H2.8_Cel P14682_UBC3_YEAST	(439) (237)	521 579 HHPFFTRFLIPQLQPPPIPFQLIPPFLNRTKHV	

FIG. 5A

RATL1d6 BLAST results/alignment w/ Drosophila protein

>GCGPROT:046068 EG:25E8.2 PROTEIN. Length = 394 Score = 369 bits (936), Expect = e-101 Identities = 194/403 (48%), Positives = 265/403 (65%), Gaps = 51/403 (12%)					
Query:		LRRELKLLESIFHRGHERFRIASACLDELSCEFLLAGAGGAGAAAPGPHLPPRGSVPGD 1 L++E+K LE IF + HERF+I ++ +DEL C F+			
Sbjct:	7	LKQEIKTLEKIFPKNHERFQILNSSVDELLCRFIDKNGK 4	15		
Query:	101	PVRIHCNITESYPAVPPIWSVESDDPNLAAVLERLVDIKKGNTLLLQHLKRIISDLCKLY 1 IH NITE+YP+ PP+W ES++ ++ ++ L + + ++ ++ ++ LC+L+	160		
Sbjct:	46	RYDIHANITETYPSSPPVWFAESEETSVTNAVQILSNTNGRDNHVINQVGILLRELCRLH 1	L05		
Query:	161	NLPQHPDVEMLDQPLPAEQCTQEDVSSEDEDEEMPEDTEDLDHYEM 2 N+P PD++ L PL + + E +EE D E+++	206		
		NYPLPPDIDNLALPLQTPPPSASPLRCEQRPGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG			
Query:	207	KEEEPAEGKKSEDDGIGKENLAILEKIKKNQRQDYLNGAVSGSVQATD 2 + E+ +EG + S+ D + E+LA LEK++++QRQDYL G+VSGSVQATD	254		
THE .		ESEQESEGDEDLPLEMDDVRSTSKKDDMEVEHLATLEKLRQSQRQDYLKGSVSGSVQATD 2			
Ul Query:	255	RLMKELRDIYRSQSFKGGNYAVELVNDSLYDWNVKLLKVDQDSALHNDLQILKEKEGADF 3 RLMKELRDIYRS +FK Y++ELVN+S+Y+WN++L VD DS LH+DLQ+LKEKEG D	314		
Sbjct:	226	RLMKELRDIYRSDAFKKNMYSIELVNESIYEWNIRLKSVDPDSPLHSDLQMLKEKEGKDS 2	285		
∰Query:	315	ILLNFSFKDNFPFDPPFVRVVSPVLSGGYVLGGGAICMELLTKQGWSSAYSIESVIMQIS 3 ILLN FK+ +PF+PPFVRVV P++SGGYVL GGAICMELLTKQGWSSAY++E+VIMQI+	374		
Sbjct:	286	ILLNILFKETYPFEPPFVRVVHPIISGGYVLIGGAICMELLTKQGWSSAYTVEAVIMQIA 3	345		
U Query:	375	ATLVKGKARVQFGANKSQYSLTRAQQSYKSLVQIHEKNG 413 ATLVKGKAR+QFGA K+ QYSL RAQQS+KSLVQIHEKNG			
Sbjct:	346	ATLVKGKARIQFGATKALTQGQYSLARAQQSFKSLVQIHEKNG 388			

FIG. 5B

RATL1d6 BLAST results/alignment w/ C. elegans protein

Lengtl Score	>GCGPROT:Q93571 F25H2.8 PROTEIN. Length = 471 Score = 317 bits (805), Expect = 6e-86 Identities = 178/397 (44%), Positives = 247/397 (61%), Gaps = 49/397 (12%)					
Query:	41	LRRELKLLESIFHRGHERFRIASACLDELSCEFLLAGAGGAGAAAPGPHLPPRGSVPGD 100 L+ ++++LE +F + H RF+I SA +DELS +F+ A G				
Sbjct:	7	LKEDIQVLEKLFPKNHNRFQILSASVDELSMKFINAENKG 46				
Query:	101	PVRIHCNITESYPAVPPIWSVESDD-PNLAAVLERLVDIKKGNTLLLQHLKRIISDLCKL 159 + + NI E+YP PPIW ESDD P + L+RL + ++ +T +L + R++SDLC				
Sbjct:	47	-IIVTANIQENYPRQPPIWFSESDDVPVIGMSLQRLTETEE-STNILHQVHRLVSDLCSF 104				
Query:	160	YNLPQHPDVEMLDQPLPAEQCTQEDVSSEDEDEEMPEDTE 199 YNL P D++ +P+ +V +DE+EE ED +				
Sbjct: ⊭	105	YNLQMPCELPQIAPPVRDDIDEGRGSDISDTTSEPIDDDMAGDGEVDDDDEEEEDDEDAD 164				
-	200	-DLDHYEMKEEEPAEGKKSEDDGIGKENLAILEKIKKNQRQDYLNGAVSGSVQATDRLMK 258 D++ EM EE+P D G+ KE L +L+K+ K RO +L+G V GS+ ATDRLMK				
	165	GDIEIVEMAEEDPTSQHDVGVSKEGLDMLDKVSKINRQQHLDGKVQGSITATDRLMK 221				
Query:	259	ELRDIYRSQSFKGGNYAVELVND-SLYDWNVKLLKVDQDSALHNDLQILKEKEGADFILL 317 E+RDI+RS+ FK G Y EL + +LY W +KL KVD+DS L D++ LK+ D +L				
Sbjct:	222	E+RDI+RS+ FK G Y EL + +LY W +KL KVD+DS L D++ LK+ D +L EIRDIHRSEHFKNGIYTFELEKEENLYQWWIKLHKVDEDSPLFEDMKKLKKDHNQDHLLF 281				
■ Query:	318	NFSFKDNFPFDPPFVRVVSPVLSGGYVLGGGAICMELLTKQGWSSAYSIESVIMQISATL 377 +F+F + FP DPPFVRVV+P ++ G+VLGGGAICMELLTKQGWSSAYSIES I+QI+ATL				
□ Sbjct: M	282	SFTFNEKFPCDPPFVRVVAPHINQGFVLGGGAICMELLTKQGWSSAYSIESCILQIAATL 341				
Query:	378	VKGKARVQFGA-NKSQYSLTRAQQSYKSLVQIHEKNG 413 VKG+AR+ F A + S YS+ RAOOS+KSL OIH K+G				
Sbjct:	342	VKGRARISFDAKHTSTYSMARAQQSFKSLQQIHAKSG 378				

FIG. 6

Relative Expression of RATL1d6

